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AUTHOR Chapman, James W.
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ABSTRACT

The "Perception of Ability Scale for Students" (PASS) developed by F. J. Boersma and J. W. Chapman--formerly known as the "Student's Perception of Ability Scale"--was developed to assess academic self-concepts of elementary school children, especially in grades 3 through 6. The development of the PASS is described, from its initial test with 310 third graders, through its refinement after administration to 642 students in grades 3 through 6 in two elementary schools in Canada. The United States normative study was undertaken in 1988, using a sample of 831 children in grades 3 through 6 in Idaho, Oregon, and Washington. The mean full scale PASS score for the total sample was 46.49, which is very similar to that determined in Canadian testing. The effects of grade level and ethnic background are discussed. Data are presented concerning the relationships between PASS scores and measures of: (1) other personality factors; (2) achievement outcomes; (3) intelligence; and (4) teacher perceptions. Recent studies have indicated that the PASS can be used with junior high and older students, especially those with learning problems. Research suggests that it is a reliable, valid, and useful measure of academic self-concept. Nine tables summarize results of various studies. A 70-item list of references is provided. (SLD)

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The Perception of Ability Scale for Students: Results from Accumulated Research

James W. Chapman

Education Department

Massey University

New Zealand

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Paper presented at the annual meeting of the American Educational Research Association, San Francisco, March 1989.

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Abstract

The Perception of Ability Scale for Students (PASS: Boersma & Chapman, in press) was formerly known as the Student's Perception of Ability Scale (SPAS: Boersma & Chapman, 1977). The PASS was developed to assess academic self-concepts of elementary school children, especially in Grades 3 to 6. This paper briefly describes the development of the PASS. Psychometric data from a recent U.S. normative study are presented. These data are discussed in terms of findings from other studies. Grade level and ethnic background effects are also discussed. Then data bearing on the relationships between PASS scores and various other measures of self-concept are considered. Data are also presented on the relationship between PASS scores and measures of (1) other personality factors, (2) achievement outcomes, (3) intelligence, and (4) teacher perceptions. Finally, results from research on the operation of the PASS with children who demonstrate varying intellectual and achievement levels are presented. Research on the PASS to date suggests that it is a reliable, valid and useful measure of academic self-concept.

The Perception of Ability Scale for Students: Results from Accumulated Research

Introduction

The Perception of Ability Scale for Students (PASS), subtitled "How I Feel About Myself In School", is a self-report instrument designed in the mid-1970s to assess children's feelings about their academic abilities and school-related achievement. Academic self-concept, as measured by this instrument, is defined as a relatively stable set of attitudes and feelings reflecting self-perception, self-evaluation and attitudes concerning an individual's performance in basic school-related tasks, like reading, writing, spelling, and math. Academic self-concept is seen as a factor related to, yet distinct from general self-concept or self-esteem.

The scale comprises 70 statements that describe how some people feel about themselves in regard to school and school work. Students are asked to indicate whether each statement applies to them by responding to dichotomous "yes" or "no" answers.

The PASS contains six subscales: Perception of General Ability; Perception of Math Ability; Perception of Reading and Spelling Ability; Perception of Penmanship and Neatness Skills; School Satisfaction; and Confidence in Academic Ability. These subscales were derived by means of factor analysis, and include all 70 items in the scale.

The PASS allows children to report their conscious feelings

about school achievement and personal abilities. These responses can be used to help identify high risk children, as well as form a part of clinical assessment. The scale can also be used for screening, planning remedial intervention, as a basis for helping children to talk about school and other concerns which are affecting their performance in school, and as a research instrument. The PASS can differentiate high and low achieving children, and is stable in its use with children from a range of national and ethnic backgrounds.

This paper briefly describes the development of the PASS. (A detailed description of development procedures is presented in the Manual [Boersma & Chapman, in press]). Psychometric data from a recent U.S. normative study are presented. These data are discussed in terms of findings from other studies. Grade level and ethnic background effects are also discussed. Then data bearing on the relationships between PASS scores and various other measures of self-concept are considered. Data are also presented on the relationship between PASS scores and measures of (1) other personality factors, (2) achievement outcomes, (3) intelligence, and (4) teacher perceptions. Finally, results from research on the operation of the PASS with children who demonstrate varying intellectual and achievement levels are presented.

Rationale for Development of the PASS

The PASS was developed during the mid-1970s, initially to

assist in research on affective characteristics of learning disabled students (Chapman & Boersma, 1980). At that time, concern with non-intellective aspects of learning disabilities had been minimal, yet North American psychology was showing a growth of interest in the self, especially in the areas of self-concept, self-efficacy, and causal attributions (Bandura, 1977; Weiner, 1974; Wells & Marwell, 1976; Wylie, 1974).

Although there were variations in focus on the nature and role of the self, most theories implied that a knowledge of individuals' self-perceptions was essential for explaining and predicting human behavior. Self-perceptions were seen as crucial mediational influences which, among other things, define for people the types of behaviors and tasks in which they will engage.

Because self-perceptions were seen to influence virtually all aspects of an individual's life, it was inevitable that interest should be shown in the relation between self-concept and school achievement. This interest was especially paramount in regards to children who experienced ongoing failure in school learning, such as learning disabled children. In this regard, Shavelson, Hubner and Stanton (1976) stated that self-concept, either as an influencing variable in the learning process that helps explain achievement outcomes, or as an outcome itself, was a critical factor in education.

Much of the research and clinical self-concept work up to the mid-1970s had dealt with global or general self-concept. Yet

in 1961. Wylie had advocated the use of more specific or "molecular" self-concept factors. This recommendation was based on her belief that personality theories which emphasized self-related concepts had been "stretched to cover so many inferred cognitive and motivational processes that the utility for analytic and predictive purposes has been greatly diminished" (Wylie, 1961, p.317). In 1977, Bandura added to Wylie's criticism when he questioned the use of a global view of self-concept because such a view "cannot possibly" explain the wide variations typically shown in self-reactions.

The most significant recognition of the need to consider more "molecular" aspects of the self was proposed by Shavelson et al. in 1976. Their multifaceted model of self-concept contained two major areas: academic self-concept and non-academic self-concept. Academic self-concept was in turn divided into subject-matter areas and then into specific areas within subjects. Similarly, non-academic self-concept was divided into social and physical self-concepts, and then divided again into more specific facets. Shavelson et al. argued that the more closely self-concept is linked with specific situations, the closer the relationship between self-concept and the behavior in the specific situation. Thus, school and achievement-related self-perceptions are more closely associated with learning activities and outcomes than either social or physical self-perceptions. Since Shavelson et al. (1976) proposed that model, numerous studies have provided validation for the

multifaceted, hierarchical nature of self-concept (Byrne, 1984; 1986).

Concern with the global way in which self-concept had been treated in research, along with the proposition that self-concept is a multi-dimensional construct, provided an influential conceptual impetus for the development of the PASS. Also influential was the role of specific, school-related self-perceptions in achievement outcomes that was being referred to in the theoretical and research literature (e.g., Bloom, 1976; Covington & Beery, 1976; Purkey, 1970).

Bloom (1976), for example, argued that specific school-related self-perceptions were a crucial influence in motivation and perseverance on school tasks. He suggested that where students have confidence in their academic abilities, they tend to invest more effort in completing learning tasks. But students who think they have inadequate abilities tend to show little patience or perseverance when problems in learning are encountered. Achievement outcomes, Bloom argued, are influenced by students' cognitive abilities, as well as by their perceptions of those abilities.

In line with this, Brookover and Gotlieb (1964) saw school self-concept as a functionally limiting factor in school success. The term "functionally limiting" referred to the limits that actually operate within broader organic limits, in determining the nature or extent of learned behavior. School self-concept defines for individuals their perceived limits of ability, and

thereby restricts the extent to which academic achievement varies. Where individuals are positive and feel confident about their abilities in the learning process, their expectations will tend to be set within realistic, attainable limits, and their enthusiasm and task-related motivation will likely be positive. Where negative ability perceptions are held, and expectations are low, individuals will likely see little point in investing effort and time on academic tasks. Such propositions seemed to hold important implications for failure prone children, such as those with learning disabilities.

Having seen merit in considering school-related self-perceptions as possible constraints in attempts to improve the achievement outcomes of learning disabled students, our attention turned to ways of measuring such self-beliefs. At this time in the mid-1970s, self-concept studies were being criticized for their lack of quality. Much of this criticism centered around the poor standardization and validation of instruments. Crowne and Stephens (1961), for example, stated that there was a "relative absence of systematic efforts in test development, standardization, and validation in this area" (p. 119). Similarly, Wylie (1961) concluded that information on the reliability and validity of "most" self-concept instruments was quite inadequate (p. 61).

In addition to the relatively poor state of measurement, it was apparent in the mid-1970s that there were very few scales for specifically assessing academic self-concept. Scales available

for that purpose had been developed for use with high school students (e.g., the Brookover scales developed at Michigan State University; Brookover, LePere, Hamachek, Thomas & Erickson, 1965), and/or were characterized by the inadequate psychometric development that Wylie (1974) regarded as being typical of most self-concept instruments. It was clear to us therefore, that in order to assess academic self-concept in elementary school children, a new scale specifically designed for that purpose was required.

In short then, the Perception of Ability Scale for Students was devised to meet the need for a reliable and valid measure of school-related ability perceptions and academic self-concept. Initially, the scale was used as one means of describing the affective characteristics of learning disabled students, in comparison to normally achieving students. However, the PASS has since been used to asses the academic self-perceptions of a range of children in a variety of educational settings and countries.

Scale Development

Details of procedures adopted in designing and developing the PASS are presented in the Manual (Boersma & Chapman, in press). A very brief summary of that process is provided here.

An important consideration in developing the PASS was the requirement for items that dealt specifically with general self-perceptions of ability, perceptions of subject-specific competence, along with feelings, attitudes and self-confidence

about school in general. With this in mind, a pool of some 200 items relating to self-perceptions of school performance and attitudes toward school was generated. Item development involved consultation with teachers, school psychologists, and an examination of other self-concept measures. From this pool, 143 forced-choice "Yes-No" items were selected: 25 representing each of the five major elementary school subject areas (reading, spelling, language arts, mathematics, and penmanship), and 18 relating to school in general. An approximately equal number of positive and negative statements was used with items being randomly ordered in an attempt to reduce possible response set.

The 143-item scale was then administered to 310 Grade 3 elementary school children during 1976. In order to explore the factor structure of the scale, and to provide subscales which tapped specific aspects of academic self-concept, a principal components analysis was applied. Four varimax rotations were carried out, using as input the first four, five, six, and seven factors from the principal components solution. The six factor solution appeared most meaningful, and was chosen to describe the structure of the PASS. Following an examination of the loading matrix, along with relevant item analysis data, the 12 items with the highest loadings on each of the first five components, and the ten with the highest loadings on the sixth component were selected to comprise the final set of PASS subscales.

The first factor comprised negative statements reflecting range of general perceptions of ability. Accordingly, this

factor was labelled Perception of General Ability (General Ability). Examples of items in this factor are: "I find it hard to understand what I have to do"; "I make many mistakes in school"; and, "I have trouble telling others what I mean."

The second factor contained statements that focus primarily on perceptions of mathematical ability, such as "I am good at arithmetic." and, "I have difficulty getting my arithmetic finished on time". This component was initially named Perception of Arithmetic Ability, but has been changed to Perception of Mathematics Ability (Math) in order to reflect more contemporary terminology.

The third factor contained items mainly reflecting satisfaction (enjoyment) with school and school-related activities. This factor was labelled General School Satisfaction (School Satisfaction). Among statements making up this scale are: "I like going to school"; "I like answering questions"; and, "I like making up endings to stories".

The fourth factor was made up of items dealing primarily with self-evaluations of reading and spelling ability. This component was referred to as Perception of Reading and Spelling Ability (Reading/Spelling). Sample items are: "I am a good reader"; and, "I find spelling hard".

Factor five contained statements relating to neatness and tidiness of written work. Accordingly, this component was named Perception of Penmanship and Neatness Ability (Penmanship/ Neatness). Examples of items included in this factor are: "I am

good at printing"; and, "My schoolwork is usually untidy".

Factor six reflected a willingness of children to express high levels of competence or perfection in their school work, and as such seemed indicative of the amount of confidence children have in their academic abilities. Thus, the last factor was labelled Confidence in School (Confidence). Examples of items making up this factor are: "I always understand everything I read"; and "I am a smart kid".

In order to determine the operating characteristics of the PASS, the 70-item scale was administered to 642 students in Grades 3 to 6 from two middle-class public elementary schools in Edmonton (Alberta, Canada). Results from item analyses, further factor analysis to verify the subscale structure of the PASS, and subscale intercorrelations, contributed to our decision to confirm the items and subscales of the instrument.

On the basis of the promising internal structural characteristics of the PASS, it was decided to make the scale available for more widespread use. This in turn has led to numerous studies being undertaken with the PASS in a number of countries (e.g., Australia, Brazil, Britain, Canada, Czechoslovakia, New Zealand, and the United States), with a variety of student populations (e.g., learning disabled, gifted, mildly mentally retarded, emotionally disturbed), of varying ethnic background (e.g., Spanish-American, Canadian Indian, New Zealand Maori), in a range of Grade levels (elementary school, junior high school, high school). Such unexpected use and

interest in the PASS has resulted in a U.S. "normative" study being undertaken. Results from that study are now presented.

United States Normative Study

The U.S. normative study was undertaken in 1988. Data from that study are presented, and where relevant, comparisons with results from various other studies are presented and discussed.

The normative sample comprised 831 school children in Grades 3 to 6, attending schools in three states (Idaho, Oregon, Washington). These schools served a range of urban and rural communities. The children were from a full range of socio-economic backgrounds, but with the majority from middle income families. Ethnic background information was available for 747 students, resulting in the following breakdown: White 88%; Hispanic 7%; Black 1.3%; American-Indian 1.5%; Asian 0.7%; Other 1.5%. Authorities at the participating schools indicated that students taking part in the norming represented a range of achievement levels typically found in regular classrooms.

The mean Full Scale PASS score for the total sample of 831 children was 46.49 (SD = 12.59). This mean is very similar to that obtained by the Canadian development sample of students in Grades 3 to 6. Such consistency suggests that the PASS is fairly robust across both U.S. and Canadian samples of full range children enrolled in regular elementary school classrooms. Table 1 presents Full and subscale means and standard deviations for the normative and development samples.

Insert Table 1 about here

Data for groups of normally achieving children (excluding slow learners and students who have learning problems) obtained in a variety of studies are presented in Table 2. The means for these students are very consistent, with most in the range of 47 to 49 raw score points. These data further attest to the PASS's robust nature and stability with students in a number of countries and school settings.

Insert Table 2 about here

Reliability

The internal reliability estimate (Cronbach's alpha) for the normative sample of 831 American children in Grades 3 to 6 was .93. This compares with an alpha coefficient of .91 for 310 Grade 3 students (Chapman, Boersma & Maguire, 1977), and .92 for the development sample of 642 Canadian children in Grades 3 to 6 (Boersma & Chapman, 1984). Clearly, the PASS appears to have stable internal reliability estimates across homogeneous samples of elementary school children. Full and subscale internal consistency coefficients, along with the Standard Error of Measurement estimates, are presented in Table 3.

Insert Table 3 about here

Subscale reliability estimates have also been reasonably consistent across studies. Most subscales have produced internal consistency coefficients of greater than .80, although the Confidence subscale has consistently produced the lowest reliability estimate (in the .60 range). On the other hand, the Reading and Spelling subscale has consistently produced the highest internal reliability estimate.

Two studies have reported test-retest data for the PASS. Boersma and Chapman (1984) obtained a Full Scale stability coefficient of .83 for 604 children in the development sample. Subscale values ranged from .71 to .82.

Chapman and Wilkinson (1988) reported Full Scale test-retest stability coefficients for a period ranging from 2 1/2 to 4 1/2 years. The sample included 51 "learning disabled" (LD) and 53 normally achieving (NA) New Zealand students who were studied from the start of Grade 6 through the end of Grade 10. The PASS was administered at the start and end of Grade 6, the end of Grade 7, and mid-way through Grade 10.

For the NA students, the test-retest correlations were .54 for the 2 1/2 year interval, .53 for the 3 1/2 year interval, and .35 for the 4 1/2 year interval. The LD students showed an interesting stability pattern with coefficients of .51 for 2 1/2 years, .48 for 3 1/2 years, and .71 for 4 1/2 years. These LD

students showed that the longest time period provided the highest test-retest correlation. Additional research would be needed to see if such a pattern typified other learning disabled students. Overall, the PASS appears to be a reliable and relatively stable measure.

Grade Level

A decline in PASS scores between Grades 2 and 3 was observed in the normative sample (see Table 4). However, as the data for normally achieving students in Table 2 show, mean Full Scale PASS scores are fairly consistent across different age/grade levels beyond Grade 2.

Insert Table 4 about here

These data are consistent with Wylie's (1979) conclusion that self-concept scores do not necessarily change with age. Following her extensive review of self-concept research, Wylie (1979) reported that self-concept tends to be fairly stable between the ages of 8 and 23 years. Others have noted that after the first year or two in school, initially high academic self-concepts often decline at around ages seven and eight (Eshel & Klein, 1981). Typical declines in ability perceptions occur following initial overestimates of abilities (Entwistle & Hayduk, 1978; Stipek, 1984), and in response to information about performances provided by teachers and peers (Rosenholtz &

Simpson, 1984). But from about Grade 3, self-concept, including academic self-concept seems to be fairly stable. Harter (1983) suggested that such stability is due to contextual factors, including peer reference group and performance expectations.

Gender Differences

Consistent gender differences have been found with the PASS. In the normative sample, there was a 3.38 difference in Full Scale scores between boys and girls. Girls reported higher self-perceptions than boys, $t(829) = 3.91$, $p < .01$. The magnitude of difference is similar to the Canadian development sample (3.17 points; Boersma & Chapman, 1984), and to a New Zealand Grade 6 sample (3.17 points; Chapman & Boersma, 1982).

In addition to Full Scale gender differences, statistically significant differences were also found for the Reading/Spelling, Penmanship/Neatness, and School Satisfaction subscales. These differences are consistent with data collected in Canada (Boersma & Chapman, 1984) and New Zealand (Chapman & Boersma, 1982), which also showed that girls in those countries reported higher self-perceptions on those same subscales.

In order to identify which items differentiated most between boys and girls, the percentages of students answering each item of the PASS in the direction of a positive academic self-concept were examined. Only 14 items showed a 10% or more difference in response rate. Those items included seven in the Penmanship/ Neatness subscale, and refer to presentation and tidiness of

work. The others relate to teacher attitudes toward the student's work, general self-attitudes about aspects of school work, and liking reading to parents. Thus, girls, more than boys, report that they like to present neat work, please others, and indicate that they enjoy school. The finding is consistent with Nicholls' (1980) observation that girls more than boys often attend to non-intellectual aspects of their work, such as diligence, conformity, and trying to please the teacher. Full- and subscale scores for boys and girls are presented in Table 5.

Insert Table 5 about here

Ethnic Background

Unfortunately, the numbers of ethnic minority children included in the normative study were small, and do not warrant attention at this time. Nonetheless, a few studies have reported PASS data for ethnic minority students.

Arellano-Romero and Chapman (1989) analysed PASS scores for Mexican-American elementary school children in terms of whether their preferred language of instruction was English or Spanish. Contrary to what was expected, both groups obtained similar mean Full Scale PASS scores (English $M = 46.01$; Spanish $M = 46.40$). These means scores are consistent with the normative sample Hispanic mean of 46.55 (Boersma & Chapman, in press) and also with the normative mean score of 46.49. It was concluded that Spanish-speaking students do not necessarily show decrements in

their overall academic self-concepts when compared to their English-speaking Mexican-American peers. Nor do Mexican-American students necessarily have lower academic self-concepts than other students, despite the frequent observation that Spanish-speaking Hispanic children have the lowest mean educational attainments in the United States (Steinberg, Blindle & Chan, 1984). Rather, the finding is in line with Walker's (1986) conclusion that underachievement among Mexican-American students is not necessarily related to self-perceptions of failure or negative attitudes toward school or school subjects.

Apart from the Full Scale PASS scores, Arellano-Romero and Chapman (1989) demonstrated the value of considering more specific facets of academic self-concept in their analysis of subscale scores. Results for the subject-specific subscales of Math and Reading/Spelling showed that Spanish-speaking students reported lower perceptions of ability in those areas than the English-speaking Hispanic students. These differences however, were not associated with lower achievement levels. So, although the Spanish-speaking students were achieving at similar levels to their English-speaking peers, they indicated feelings of less competence. It was suggested that teachers and Anglo peers expect Spanish-speaking students to perform poorly, and treat them accordingly.

Of particular interest in this study was the finding that Spanish-speaking students reported feeling relatively confident about their performance in school. Their mean score on the

Confidence subscale was 6.42, which is around one standard deviation higher than the normative mean of 4.64. It was suggested that these Spanish-speaking students may feel that it is socially appropriate or desirable to respond to items such as those comprising the Confidence subscale in as favorable way as possible in order to indicate that they felt as smart and knowledgeable as other students.

Data from a study of Canadian Native Indians has been reported by the Edmonton Public Schools Curriculum Department (1980). Full Scale PASS scores for Native Indians in Grades 3 and 6 were compared with those of non-native students. The mean score for the Indian students early in the academic year was 42.73, and towards the end of the school year was 42.87. For the non-native students, the means were 47.72 and 47.31 respectively. Achievement level was not controlled for, so it is unclear as to whether the apparent differences between Native Indian and non-native students were due more to ethnic background as such, or to achievement differences.

In order to investigate academic self-concept among native Maori (Polynesian) children in New Zealand, Chapman (1984) matched Maori and white students in terms of gender, socio-economic status, and achievement levels. Because Maori children traditionally achieve at around one standard deviation below the mean of white students on standardized tests of achievement, controlling for achievement level resulted in both groups having relatively low levels of achievement. Maori and white students

obtained similar Full Scale PASS scores (Maori M = 37.84; White M = 38.84), and there were no significant differences for subscale scores. These relatively low PASS scores are in line with what might be expected, considering the achievement levels of students in the study.

Although PASS data for ethnic minority groups are somewhat sparse at this stage, the findings are in line with those noted by Piers (1984). Ethnic background per se does not seem to be the main determinant of either general self-concept or academic self-concept. Achievement levels and factors associated with social desirability and classroom experiences are more likely to influence academic self-concept than simply ethnic background.

Validity

Data relating to the content, criterion, and construct validity of the PASS have been obtained from various studies. The "validity" of a scale is never established as such. Rather, evidence is gathered over time in support of validity, especially construct validity. Some of these data for the PASS been reported in earlier versions of the Manual (Boersma & Chapman, 1979; 1984). In this section, more recent findings relating to the validity of the PASS are considered in terms of relationships with (1) other self-concept measures (both academic and general self-concept), (2) measures of logically related affective variables (e.g., achievement expectations), (3) various measures of academic achievement, and (4) teacher ratings.

Relationships with Other Self-Concept Measures

A number of studies have examined the relation between PASS scores and other measures of self-concept. In addition, most children in the normative study also completed the Piers-Harris Children's Self-Concept Scale. Other data from a major cohort study, not yet fully analysed or published, will also be referred to. The relation between PASS scores and other self-concept measures will be considered in terms of academic self-concept first, followed by general self-concept. Summary correlations between PASS Full Scale scores and other affective measures are shown in Table 6.

Insert Table 6 about here

Academic Self-Concept. Chapman and Wilkinson (1988) reported correlations between the PASS and the combined Brookover scales (SCA: Brookover et al., 1965) for learning disabled (LD) and non-learning disabled (NLD) students. At the start of Grade 6, Full Scale PASS scores for NLD students correlated .36 with SCA scores in Grade 10, 4 1/2 years later. This relationship increased at the end of Grade 6 (.47), but declined at the end of Grade 7 (.32). The concurrent, Grade 10 relationship between PASS and SCA scores for these NLD students was .48.

Correlations for LD students were more stable. Grade 10 SCA scores correlated .50 with PASS scores at the start of Grade 6, .48 at the end of Grade 6, and .49 at the end of Grade 7. The

concurrent. Grade 10 correlation between PASS and SCA scores for the LD students was .52.

These limited data suggest that the PASS has acceptable concurrent and predictive validity with another well-known measure of academic self-concept. Additional data, however, with other measures of ability perceptions are desirable.

General Self-Concept. The Normative Sample for the PASS completed the Piers-Harris Children's Self-Concept Scale for Children (Piers, 1984) at the same time. The correlation between PASS and Piers-Harris full scale scores is .69, suggesting that there is a moderately strong relationship between general and academic self-concept. PASS subscale correlations with the Piers-Harris Total Score ranged from .62 (General Ability) to .40 (School Satisfaction). These data, along with correlations from other studies, are presented in Table 6.

Of the Piers-Harris subscales, Intellectual and School Status showed the highest correlations with the PASS Full Scale (.74). Subscale correlations ranged from .60 (General Ability) to .45 (School Satisfaction). The Behavior subscale had the next highest set of correlations, ranging from .49 (General Ability) to .34 (School Satisfaction). The lowest overall correlations were found for the Popularity subscale; these ranged from .44 (General Ability) to .23 (School Satisfaction). The lowest of all PASS/Piers-Harris correlations was .18, for the relation between School Satisfaction and Anxiety, whereas the highest of the subscale correlations was .60, for General Ability and

Intellectual and School Status.

These data suggest that the PASS is meaningfully associated with general self-concept, as measured by the Piers-Harris. As would be expected, correlations were higher with the Intellectual and School Status subscale of the Piers-Harris than with either the overall general self-concept score, or with other facets of the self as measured by the subscales.

In unpublished data (Chapman, 1988a), PASS scores were correlated with scores from the Tennessee Self-Concept Scale (Fitts, 1965). Correlation coefficients were computed separately for LD and NLD Grade 10 students. The full scales correlated .25 for the NLD students, and .35 for the LD students. In terms of subscale correlations for the NLD students, the Tennessee Personality scale had the highest relationships with the PASS Full Scale (.39). The highest Personality/PASS subscale correlations were .50 (Math) and .45 (General Ability), whereas the lowest was -.04 (Reading & Spelling).

For the LD students, the Social subscale of the Tennessee Self-Concept Scale showed the highest correlations with PASS scales. The Social subscale correlated .50 with the PASS Full Scale, .49 with School Satisfaction, .47 with Confidence, and .45 with General Ability. The lowest correlation was .16 (Penmanship & Neatness).

Overall, the PASS shows moderate to strong relationships with other measures of self-concept. The strongest association was between PASS scores and the Intellectual and School Status

Subscale of the Piers-Harris instrument. More moderate correlations were found for the Brookover and Tennessee scales. The finding that the PASS correlated higher with a measure of general self-concept (Piers-Harris) than with another measure of academic self-concept (SCA), may have been due to the nature and purpose of the scales. The PASS was designed primarily for use at the elementary level. As such, items relate more to the basic skills that are emphasized during the elementary years. On the other hand, the Brookover SCA scales focus on high school subject areas, and on perceptions of ability relating to tertiary level education. The different aspects of academic self-concept tapped by the PASS and the SCA therefore, probably affected the degree of correspondence between them. In addition, many items in the Piers-Harris scale are school-related, and the PASS and Piers-Harris scales have similar response formats. These two factors may have enhanced the degree of correspondence between them.

Other Affective and Personality Measures

Further evidence in support of the PASS's external validity may be found in its relationship with other logically associated variables. Accordingly, correlations between PASS scores and measures of achievement expectations, academic locus of control, and general personality characteristics are reported. These correlations are summarized in Table 6.

Achievement Expectations. A number of studies have examined PASS scores in terms of achievement expectations. In a study of

429 heterogeneous school children in Grades 3 to 6. Chapman and Boersma (1980) found that PASS Full Scale scores correlated .56 with scores for the Projected Academic Performance Scale (PAPS: Chapman & Boersma, 1978). Similarly, PASS and PAPS full scale scores correlated .60 for 1083 Grade 6 children (Chapman, 1988a). Twelve months later, at the end of Grade 7, data were available for 1011 students, and a correlation coefficient of .72 was found.

Clearly, PASS scores are strongly correlated with achievement expectations as measured by the Projected Academic Performance Scale. As would be logically expected, students with high levels of academic self-concept tend to anticipate achieving well in the future. Students who have low academic self-concepts do not expect future academic performance levels to be very high.

Academic Locus of Control. Another variable logically related to academic self-concept is academic locus of control. This variable refers to the perceptions that individuals hold regarding the causes of success and failure in school, and is now frequently referred to within the framework of causal attributions.

The Intellectual Achievement Responsibility Questionnaire (IAR: Crandall, Katkovsky & Crandall, 1965) is probably the scale used most often to assess academic locus of control. The IAR assesses beliefs regarding causes for both success and failure in school. The perceived causes are either internal (e.g., effort, ability) or external (e.g., task ease or difficulty, teacher

assistance). For full range heterogeneous samples of children, the PASS correlated in the range of .44 to .45 with causal perceptions of success. Causal beliefs regarding failure, however, showed no meaningful relationships (r's = .05 to -.04). Data on the relationship between PASS and IAR scores are shown in Table 6.

Another measure of academic locus of control is the Intrinsic-Extrinsic Orientation Scale (I-E: Harter, 1981). Full Scale PASS scores correlated .56 with Full Scale I-E scores for a heterogeneous full range sample of Grade 6 students (Chapman, 1988a). When these children had completed Grade 7, the correlation between the two scales was also .56. Students with relatively high academic self-concepts therefore, tend also to see themselves as being internally oriented or largely in control of school-related activities and outcomes. On the other hand, students who have relatively low academic self-concepts, tend to feel externally controlled in their schoolwork.

Overall then, there is a moderate relationship between PASS scores and beliefs regarding the cause of success in school. Students holding high academic self-concepts tend to feel more in control of achievement outcomes and more efficacious in academic work; success in school is seen as being caused by their effort and ability. On the other hand, students with relatively low academic self-concepts tend to see success in school as being caused by the work being easy or the teacher helping. Such students do not feel as efficacious. No meaningful link between

PASS scores and beliefs regarding the cause of failure in school however, was found. Data from other studies suggest that the perceptions of failure, as measured by the IAR, have negligible relationships with other variables such as achievement expectations, and academic performance in school (e.g., Chapman, 1985; Chapman & Boersma, 1980).

General Personality. PASS scores have also been studied in terms of their relationship to a general personality measure. Ryba, Edelman and Chapman (1984) correlated scores for the California Test of Personality, Form AA (CTP: Thorpe, Clarke & Teigs, 1953) with scores on the PASS for 233 special education students in a pre-vocational training program. Full Scale PASS and CTP Total scores correlated .48, thus indicating a moderate degree of association between the PASS and this social/personal adjustment measure.

Summary. The PASS shows relatively strong relationships with achievement expectations, and moderate associations with academic locus of control and general personality. Such relationships are consistent with the belief that academic self-concept should be associated with expectations regarding future success in school, perceptions of control and efficacy in achievement situations, as well as with more general personality characteristics. In this regard, the data add further support for the validity of the PASS.

School Achievement

An important aspect of providing evidence for the external validity of the PASS involves investigating its relationship with school achievement. The accumulation of success and failure experiences in school influences each individual's school self-concept (Brookover et al., 1965; Bloom, 1976; Marshall & Weinstein, 1984). Successful students tend to develop positive self-perceptions of ability, whereas those who experience considerable failure tend to develop more negative self-perceptions of ability. Accordingly, PASS scores should show a positive relationship with school achievement.

Studies of the relationship between PASS scores and report grades have been detailed elsewhere (Boersma et al., 1979; Chapman, Cullen, Boersma & Maguire, 1981). In brief, these studies show moderately strong correlations between Full Scale PASS scores and average grades (e.g., r = .49). In addition, the subject-specific subscales of the PASS correlated highest with grades in the corresponding subject areas (e.g., Math subscale with Math achievement). The General Ability subscale showed moderate relationships with most subject grades, whereas School Satisfaction scores showed generally weak to negligible correlations with report grades.

Stronger relationships between PASS scores and grades have been observed more recently in a two year cohort study (Chapman, 1988a). Full Scale PASS scores correlated .57 with average grades. For various subject areas, Full Scale PASS scores

correlated .49 to .52 for language (oral and written), reading and spelling. The lowest Full Scale correlation was with grades in Penmanship (r = .41). Correlation coefficients are presented in Table 7.

Insert Table 7 about here

Of the PASS subscales, Reading/Spelling correlated highest with grades in Spelling, Reading, and Written Language; Math correlated highest with Math grades; and the Penmanship/Neatness subscale had its strongest relationship with Penmanship grades. Of the other subscales, Confidence scores were relatively strong in their relationship with school grades, ranging from .47 for average grades to .26 for grades in Penmanship. Subscale correlations are also shown in Table 7.

Analyses were also performed on the relationship between PASS scores at the end of Grade 6, and grades at the end of Grade 7. (Correlations for these data are presented in Table 8.) The strength of relationship between PASS scores and grades 12 months later held up very well, with slight increases in a number of correlations. For example, Grade 6 Full Scale PASS scores correlated .57 with Grade 6 average grades and .59 with Grade 7 average grades. Full Scale correlations with specific subject area grades also maintained their strength of association. The range here was from .54 (Reading) to .42 (Penmanship).

Insert Table 8 about here

In terms of PASS subscale correlations, Reading/Spelling showed moderately strong predictive power in regard to achievement in Spelling, Reading, and Written Language. The Math subscale was most strongly predictive of Math achievement, and the Penmanship/Neatness subscale was the best predictor of achievement in Penmanship.

Of the other PASS subscales, General Ability had the highest associations with achievement in specific areas, and the Confidence subscale was also moderately predictive of school achievement.

Finally, average Grade 7 grades were best predicted by Full Scale PASS scores (r = .59), followed by Reading/Spelling (r = .54) and General Ability (r = .50).

Overall then, the findings on the relationship between PASS scores and report grades from three studies (Boersma et al., 1979; Chapman, 1988a; Chapman et al., 1981) indicate that the scale is moderately strong in its relationship with current and subsequent school achievement. Indeed, PASS scores were not only moderately strong in their association with concurrent grades, but the association held up well over time in terms of predicting grades twelve months later. Further, there was evidence in support of the predictive validity of the subject-specific subscales of the PASS; they were most closely associated with

grades in the relevant subject areas. Clearly then, the PASS shows that it is satisfactorily related to school achievement as summarized by report grades.

Of further interest in terms of school performance and PASS scores are data on standardized measures of achievement. Correlations between the PASS and various standardized achievement tests are detailed in the Manual (Boersma & Chapman, in press). As might be expected, these are a little lower than for correlations with Report Grades. However, the results of four studies (Boersma & Chapman, 1984; Butkowsky, 1982; Chapman & Boersma, 1983; Cullen, Boersma & Chapman, 1979) show generally moderate correlations between the PASS and various standardized measures of achievement.

Considering the achievement data together, the PASS shows moderate to strong and relatively consistent relationships with school achievement, as assessed by report card grades and standardized achievement tests. In particular, correlations tend to be higher for achievement scores in the reading, spelling, and language arts areas, with coefficients in the .3 to .5 range. The PASS is also predictive of future achievement at a moderate to strong level. In addition, the PASS General Ability subscale had the strongest predictive relationship with subsequent report card grades. Clearly then, the scale demonstrates good concurrent and predictive validity with respect to school achievement.

Intelligence Measures

The relationship between PASS scores and various measures of intelligence has been detailed in the Manual (Boersma & Chapman, in press). In sum, the PASS has a moderate to negligible relationship with IQ scores, suggesting that academic self-concept is relatively independent of both group and individual intelligence test measures. The implication of this finding, along with the achievement test intercorrelations, is that academic self-concept relates more to school achievement than to intelligence per se. Further, in-class achievement, as summarized by report grades, is more closely associated with academic self-concept than standardized achievement tests. These findings are consistent with the idea that student achievement-related perceptions are developed largely as a function of feedback on school performance from significant others, especially teachers.

Teacher Ratings

If academic self-concept is related partly at least to the beliefs held by significant others regarding student's abilities and performance (e.g., Rosenholtz & Simpson, 1984), then teacher perceptions ought to correlate with student self-perceptions. Thus, children who have high academic self-concepts tend to perform well in school, and concomitantly, receive more positive feedback from teachers, whereas those with low academic self-concepts are likely to experience considerable failure in school, and to receive more negative feedback from teachers regarding their abilities.

Chapman and Boersma (1980) reported a correlation between PASS scores and teacher expectations of .40 for students in Grades 3 to 6. From unpublished data, Chapman (1988a) observed a correlation of .52 between Full Scale PASS scores and teacher expectations for Grade 6 students. In the same data set, correlations were computed between PASS scores and teacher ratings made on the Pupil Rating Scale (PRS: Myklebust, 1981). This scale assesses behavior and performance in five areas: auditory comprehension and listening, spoken language, orientation, classroom behavior, and motor ability. Full Scale PASS scores correlated .49 with the total PRS. Thus, low academic self-concept is associated with teachers' perceptions of academic and behavioral difficulties in students. All but one of the PRS subscales correlated greater between .40 and .44 with Full Scale PASS scores. Most of the PASS subscales correlated in the range of .20 to .40 with the subscales of the Pupil Rating Scale. However, Motor Ability showed a relatively weak association with academic self-concept.

These relatively limited data offer some support for the belief that a good measure of academic self-concept should be meaningfully related to teacher perceptions and student achievement and behavior.

Use with Exceptional Children

An important indicator of the PASS's external validity lies in its ability to discriminate between groups of children

according to their achievement level. The academic self-concepts of learning disabled (LD) students, as assessed by the PASS, have received particular attention. However, the PASS has also been used with mentally retarded, pre-vocational non-academic, and gifted students. Results are summarized in Table 9.

Insert Table 9 about here

The PASS was originally developed to assist in the study of LD students' academic self-concepts. Since 1977, a number of such studies have been conducted. These results have been discussed in detail in numerous sources. The actual studies, along with the results, are shown in Table 9.

Overall, the findings show that the PASS clearly differentiates LD from non-LD students. The level of difference has been reported by Chapman (in press) in a meta-analysis of LD self-concept research. Eleven comparisons of PASS scores for LD and NLD students provided a mean Effect Size of -.92, indicating that 82% of LD students have Full Scale scores that are lower than the average PASS scores of non-LD students.

Studies of other exceptional students also reveal consistent differences. Ryba et al. (1984) collected PASS data from special class students enrolled in heterogeneous vocational training programs in New Zealand high schools. Placement in these programs required that each student had an IQ score greater than 55, and were not likely benefit from regular class instruction. A mean

Full Scale PASS score of 36.79 was obtained, which is very similar to the PASS mean score for adolescent LD students obtained by Hiebert et al. (1982) (see Table 8). These findings support the sensitivity of the PASS in use with adolescents who have learning problems, and indicate that the scale can be employed at the junior high and high school level.

A comparison of PASS scores for Gifted, LD and NLD students has been reported by Chapman and Boersma (1986). Mean scores for the Full Scale (see Table 8) and for all subscales except Penmanship/Neatness showed significant differences between the groups.

In a follow-up longitudinal study of the Gifted and NLD students, Chapman and McAlpine (1988) found that the Gifted students had significantly higher PASS scores in all areas except School Satisfaction and Penmanship/Neatness. In general, scores were stable for both groups over two years, although a decline in school satisfaction was noted for both groups. Also, Gifted girls reported declines in their perceptions of ability in penmanship and neatness. The results suggest that ability perceptions become stable as patterns of performance become stable.

Data relating to the effectiveness of the PASS in assessing changes in school self-concept following intervention programs have been reported in several research papers (Battle & Blowers, 1982; Boersma, Chapman & Battle, 1979; Rogers & Saklofske, 1985; Thomas & Pashley, 1982). Considered together, these studies indicate that increases in PASS scores frequently occur following

remedial intervention. However, in a two-year longitudinal study of LD children for whom remedial programs were not available, PASS scores remained stable (Chapman, 1988b). These results indicate that the PASS is sensitive to the affects of remedial programs, and might be used to assess pre-post changes in school self-concept as a function of type of classroom placement.

Summary

The PASS appears to be a suitable instrument for assessing academic self-concept in a range of students. The scale clearly and consistently differentiates LD from normally achieving students. In addition, meaningful results can be obtained from use of the scale with high school students who have learning disabilities, as well as with classified as mildly mentally retarded. Further, the PASS does not appear to have a ceiling effect which prevents differentiation of gifted students from those of average ability. More importantly perhaps, the PASS has been effectively used to assess academic self-concept change as a result of remedial intervention. Although the scale appears to be stable over time, it is nonetheless sensitive to changes in academic self-concept that are associated with remediation. Where remediation has taken place, increases have been observed in PASS scores. Where students have been identified as learning disabled but have not received remedial assistance, PASS scores appear to be stable over time.

In terms of subscale data, most studies show that all

subscales except Penmanship/Neatness consistently differentiate between students of varying achievement levels. It is perhaps not surprising that Penmanship/Neatness seldom differentiates learners according to performance level, because this subscale is the least "academic achievement" related of the PASS scales.

Conclusion

The PASS attempts to measure academic self-concept and was originally designed for use with elementary level school children. Various studies, however, indicate that the scale can also be used with junior high and older students, especially those with learning problems. Research findings also show that the scale is stable cross-culturally and cross-nationally.

The PASS has good structural, reliability, and validity characteristics, as well as good discriminant validity amongst its subscales. Further, the scale appears to tap a specific aspect of self-concept, namely, school related (academic) self-perception, which itself is associated with general self-concept. This is highlighted by a moderate to strong relationship with measures of general self-concept, especially the Piers-Harris. In addition, the PASS has a moderate to strong relationship with other measures of school-related perceptions.

Results from various studies show a relatively strong concurrent and predictive association between PASS scores and measures of school achievement. On the other hand, the relationship between PASS scores and measures of intelligence are

negligible. These findings suggest that school experience, as reflected by academic achievement is more closely associated with school self-perceptions than measured intelligence.

Another major finding is the consistent way in which the PASS can identify low achievers, especially learning disabled students. Also of interest is the scale's sensitivity to changes in self-perceptions as a function of intervention.

Research to date supports the efficacy of the PASS for investigating school-related academic self-perceptions in children and adolescents. As such, the instrument provides a useful and reliable means for studying an important dimension that influences learning.

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Table 1.

PASS Means and Standard Deviations for the Canadian Development and U.S. Normative Samples.

	U.S. Norm Sample (n = 831)		Canadian Development Sample (n = 642)	
Scale	M	SD	M	SD
Full Scale	46.49	12.59	46.24	11.71
General Ability	8.02	3.12	7.91	3.01
Math	9.39	2.80	9.17	3.01
Reading/Spelling	9.10	3.13	9.07	3.13
Penmanship/Neatness	8.08	2.99	7.89	3.00
School Satisfaction	7.26	2.87	7.99	2.78
Confidence	4.64	2.26	4.21	1.14

Table 2.

PASS Means and Standard Deviations for the Development and Normative Samples, and Various Groups of Normally Achieving Children.

Study	Grade	n	Mean	SD
Development and Normative Groups				
Initial Scale Development	3	310	47.00	8.57
Canadian Development Study	3-6	642	46.24	11.71
U.S. Normative Sample	3-6	831	46.49	12.59
Normally Achieving Groups				
Boersma, Chapman & Battle (1979)	3-6	83	48.42 47.9	11.09 11.4
Chapman & Boersma (1979)	3-6	81	49.72	10.64
Cullen, Boersma & Chapman (1981)	3	73	49.11	12.22
Battle & Blowers (1982)	1-7	83	48.41 47.8 47.7	11.40 11.1 11.2
Butkowsky (1982)	5 5	30 36	48.73 47.22	7.18 10.23
Chapman & Boersma (1982)	6-7	68	43.99	10.67
Hiebert, Wong & Hunter (1982)	8,10	46	49.56	9.50
Janzen, Boersma, Fisk & Chapman (1983)	4-6	211	43.97	11.54
Thomas & Pashley (1982)	3-6	50	49.16	-
Rogers & Saklofske (1985)	3-6	45	52.6	8.0
Chapman & Boersma (1986)	6	74	46.1	10.8
Chapman (1988a)	6 7 10	71 71 53	44.7 44.0 49.32	11.0 12.6 8.05

Table 3.

Internal Consistency Estimates. Standard Errors of Measurement. and Test-Retest reliability estimates for the Full Scale and Subscales.

		Grade 3 Sample		Development Sample		Normative Sample		
PASS	Number of Items	Alpha	SEm	Alpha	SEm	Alpha	SEm	Test-Retest
Full Scale	70	.91	2.57	.92	3.31	.93	3.35	.83
General Ability	12	.80	1.41	.79	1.38	.80	1.32	.75
Math	12	.84	1.22	.84	1.20	.81	1.15	.79
Reading/Spelling	12	.83	1.19	.86	1.17	.85	1.15	.82
Penmanship/Neatness	12	.74	0.65	.78	1.41	.82	1.23	.78
School Satisfaction	12	.83	1.29	.74	1.42	.75	1.39	.71
Confidence	10	.64	0.87	.69	1.25	.69	1.20	.74

Note.

4 to 6 week stability coefficients (n=603), (Boersma & Chapman, 1984).
Grade 3 sample, n=310 children (Chapman, Boersma & Maguire, 1977).
Development Sample, n=642 Grade 3 to 6 children (Boersma & Chapman, 1984).
Normative Sample, n=831 Grade 3 to 6 American children.

Table 4.

PASS Means and Standard Deviations for the Normative Sample Grouped by Grade.

Grade	n	Mean	SD
(2)*	(68)	(53.91)	(11.91)
3	196	48.82	11.80
4	192	45.87	12.22
5	117	43.74	13.21
6	326	46.44	12.84
Total Grades 3-6	831	46.49	12.59

*Grade 2 sample data not included in normative data.

Table 5.

PASS Means and Standard Deviations Grouped by Gender.

	Total (n = 831)		Boys (n = 432)		Girls (n = 399)	
Scale	M	SD	M	SD	M	SD
Full Scale	46.49	12.59	44.87	12.95	48.25	11.96*
General Ability	8.02	3.12	7.91	3.18	8.14	3.05
Math	9.39	2.80	9.27	2.89	9.52	2.69
Reading/Spelling	9.10	3.13	8.72	3.23	9.52	2.96*
Penmanship/Neatness	8.08	2.99	7.56	3.05	8.65	2.82*
School Satisfaction	7.26	2.87	6.81	2.98	7.73	2.67*
Confidence	4.64	2.26	4.59	2.29	4.69	2.23

*$p \leq .01$

Table 6.

Concurrent correlations between the PASS Full Scale and other self-concept and personality scales.

Study	Sample	N	Grade/Age	Scale	r
Academic Self-Concept					
Chapman (1988a)	NLD	53	Grade 10	ASC	.48
	LD	50	Grade 10	ASC	.52
Normative Sample	Heterogeneous	825	Grade 3-6	ISSS	.74
Boersma & Chapman (1978)	Heterogeneous	622	Grade 3-6	ISSS	.01
General Self-Concept					
Normative Sample	Heterogeneous	825	Grade 3-6	P-H	.69
Chapman et al., (1977)	Heterogeneous	268	Grade 3	P-H	.68
Boersma & Chapman, (1978)	Heterogeneous	622	Grade 3-6	P-H	.01
Battle, (1979)	Heterogeneous	90	Grade 1-7	CSEI	.70
Chapman, (1988a)	NLD	53	Grade 10	TSC	.25
	LD	50	Grade 10	TSC	.35
Achievement Expectations					
Chapman, (1988a)	Heterogeneous	1083	Grade 6	PAPS	.60
		1011	Grade 7	PAPS	.72
Chapman, (1985)	NLD	71	Grade 6	PAPS	.63
		71	Grade 7	PAPS	.69
	LD	78	Grade 6	PAPS	.48
		78	Grade 7	PAPS	.68

Chapman & Boersma, (1980)	Heterogeneous	429	Grade 3-6	PAPS	.56
	LD	81	Grade 3-6	PAPS	.46
	NLD	81	Grade 3-6	PAPS	.39
Academic Locus of Control					
Chapman & Boersma, (1980)	Heterogeneous	429	Grade 3-6	IAR+	.42
	LD	81	Grade 3-6	IAR+	.40
	NLD	81	Grade 3-6	IAR+	.35
	Heterogeneous	429	Grade 3-6	IAR-	-.09
	LD	81	Grade 3-6	IAR-	-.27
	NLD	81	Grade 3-6	IAR-	-.19
Chapman, (1985)	NLD	71	Grade 6	IAR+	.48
		71	Grade 7	IAR+	.50
	LD	78	Grade 6	IAR+	.49
		78	Grade 7	IAR+	.47
	NLD	71	Grade 6	IAR-	-.14
		71	Grade 7	IAR-	-.13
	LD	78	Grade 6	IAR-	.12
		78	Grade 7	IAR-	-.03
Chapman, (1988a)	Heterogeneous	1088	Grade 6	IAR+	.45
		1024	Grade 7	IAR+	.44
		1088	Grade 6	IAR-	-.00
		1024	Grade 7	IAR-	.05
		1079	Grade 6	Harter	.56
		1019	Grade 7	Harter	.56
Personality					
Ryba et al., (1984)	Special Class	233	14-17yrs	CTP	.48

Note.
ASC = Michigan State University Academic Self-Concept Scales (Brookover et al., 1965).
ISSC = Intellectual & School Status Subscale, Piers-Harris Self-Concept Scale for Children (Piers, 1984).
P-H = Piers-Harris Self-Concept Scale for Children (Piers, 1984).
CSEI = Canadian Self-Esteem Inventory for Children (Battle, 1976).
TSC = Tennessee Self-Concept Scale (Fitts, 1965).
PAPS = Projected Academic Performance Scale (Chapman & Boersma, 1978).
IAR = Intellectual Achievement Responsibility Scale (Crandall et al., 1965).
Harter = Intrinsic-Extrinsic Orientation Scale (Harter, 1981).
CTP = California Test of Personality (Thorpe et al., 1953).

Table 7.

Concurrent PASS and Report Card Correlations, Grade 6 (n = 930)

	Subject Area								
PASS	Olg	Wlg	Rdg	Spg	Pen	Mth	Sst	Sci	Avg
General Ability	.40	.41	.44	.40	.28	.41	.37	.36	.46
Math	.40	.37	.38	.36	.27	.50	.37	.36	.46
Reading/Spelling	.41	.49	.53	.58	.35	.43	.39	.39	.54
Penmanship/Neatness	.22	.25	.17	.24	.39	.13	.21	.17	.27
School Satisfaction	.21	.17	.15	.18	.13	.09	.12	.10	.17
Confidence	.43	.39	.44	.43	.26	.42	.34	.37	.47
Full Scale	.49	.50	.50	.52	.41	.48	.43	.42	.57

Note.

Olg = Oral Language
Wlg = Written Language
Rdg = Reading
Spg = Spelling
Pen = Penmanship
Mth = Math
Sst = Social Studies
Sci = Science
Avg = Average Grade

Table 8.

Grade 6 PASS Correlations with Grade 7 Report Card Grades (n = 1001)

	Subject Area								
PASS	Olg	Wlg	Rdg	Spg	Pen	Mth	Sst	Sci	Avg
General Ability	.39	.44	.47	.40	.31	.41	.42	.40	.50
Math	.40	.41	.43	.35	.28	.50	.41	.40	.49
Reading/Spelling	.39	.49	.53	.56	.35	.41	.45	.36	.54
Penmanship/Neatness	.20	.26	.19	.24	.39	.14	.26	.18	.28
School Satisfaction	.18	.18	.17	.18	.13	.05	.15	.10	.18
Confidence	.41	.42	.46	.42	.29	.42	.39	.40	.49
Full Scale	.47	.53	.54	.52	.42	.46	.50	.44	.59

Note.

Olg = Oral Language
Wlg = Written Language
Rdg = Reading
Spg = Spelling
Pen = Penmanship
Mth = Math
Sst = Social Studies
Sci = Science
Avg = Average Grade

Table 9.

Means and standard deviations of Full Scale PASS scores for exceptional children.

Study	Sample	Age or Grade	n	Mean	SD
Boersma et al., (1979)	Severely LD	Grades 3-6	50		
	Pretest			37.34	11.77
	Posttest			43.28	11.66
	EMR		18		
	Pretest			37.11	8.94
	Posttest			44.50	11.96
	Normal		83		
	Pretest			48.42	11.09
	Posttest			47.88	11.82
Chapman & Boersma, (1980)	LD	Grades 3-6	81	36.88	12.66
	Normal		81	49.72	10.64
Cullen et al., (1981)	LD	Grade 3	70	39.55	12.93
	Normal		73	49.35	12.13
Battle & Blowers (1982)	SEC	Grades 1-7	68		
	Time 1			37.65	11.12
	Time 2			43.90	9.14
	Time 3			44.25	8.15
	Normal		83		
	Time 1			48.41	11.40
	Time 2			47.84	11.11
	Time 3			47.69	11.15
Butkowsky (1982)	P-RDG	Grade 5	30	39.50	11.83
	Normal		30	48.73	7.18
	P-MTH		24	44.75	13.30
	Normal		36	47.22	10.23
Hiebert et al., (1982)	LD	Grades 8, 10	39	35.46	11.45
	Normal		46	49.56	9.50
Thomas & Pashley, (1982)	MLD	Grades 3-6	162	43.86	-
	Normal		50	49.16	-

Janzen et al., (1983)	LD	Grades 4-6	25	37.96	11.02
	Normal		211	43.79	11.54
Rogers & Saklofske (1985)	Severely LD	7 yrs 6 mos - 12 yrs 9 mos.			
	More than 6 mos. in remedial program			45.4	11.6
	Less than 6 mos. in remedial program			38.1	9.5
Chapman (1988b)	LD		78		
	Start Grade 6			36.35	13.10
	End Grade 6			35.95	11.15
	End Grade 7			36.54	13.45
	Normal		71		
	Start Grade 6			44.66	11.01
	End Grade 6			43.97	12.63
	End Grade 7			46.94	9.99
Chapman & Wilkinson (1988)	LD		51		
	Start Grade 6			35.73	13.99
	End Grade 7			36.66	13.21
	Mid Grade 10			40.65	9.78
	Normal		53		
	Start Grade 6			45.68	10.36
	End Grade 7			48.51	8.76
	Mid Grade 10			49.32	8.05
Ryba (1981)	Prevocational special class	14 - 16 yrs	56		
	Pre-test			37.61	12.06
	Post-test			37.30	12.54
Ryba, Edelman & Chapman (1984)	Prevocational special class	14 - 17 yrs	233	36.79	11.57
Chapman & Boersma (1986)	Gifted	Grade 7	35	53.54	7.51
	Average		74	46.11	10.86
	LD		86	36.78	13.30

Chapman & McAlpine (1987)	Gifted	29		
	Start Grade 6		54.55	8.87
	End Grade 6		54.10	7.72
	End Grade 7		53.69	7.33
	Average	71		
	Start Grade 6		44.66	11.01
	End Grade 6		43.97	12.63
	End Grade 7		46.94	9.99

Note.

SEC = Special education class; 85% LD students. 15% EMR students.
LD = Learning disabled
P-RDG = Poor readers
P-MTH = Poor in mathematics
EMR = Educable mentally retarded